

# Earth Science Query Language and Protocols Engineering Trade Study

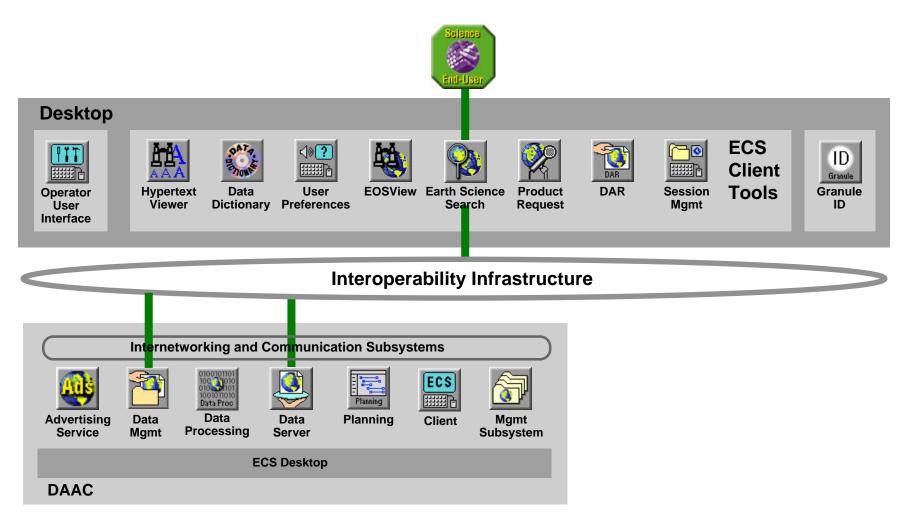
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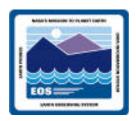
**1 November 1995** 

#### **Coincident Search Functional Flow**





## Overview - Requirements Summary and Release B Design Drivers



- Distributed and Local Search Requirements
  - Multiple Data Collections (Within a Site and Across Sites)
  - Provide Location Transparency
  - Support novice, intermediate and advanced users
- Core Metadata and Product Specific Data Values
  - Named Attributes and Services (Space, Time and Parameter)
     Geographic Metadata values and Geometric Shape Constraints
     Temporal Constraints
  - Text Field Matching (word, phrase, substring, expression)
  - Coincident Occurrences in space, time, & geo-physical parameter
- Integration of Search Results
  - Iterative Searching
  - Intermediate Heterogeneous Results

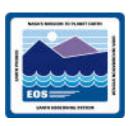
### Software Design Search "Language" Options

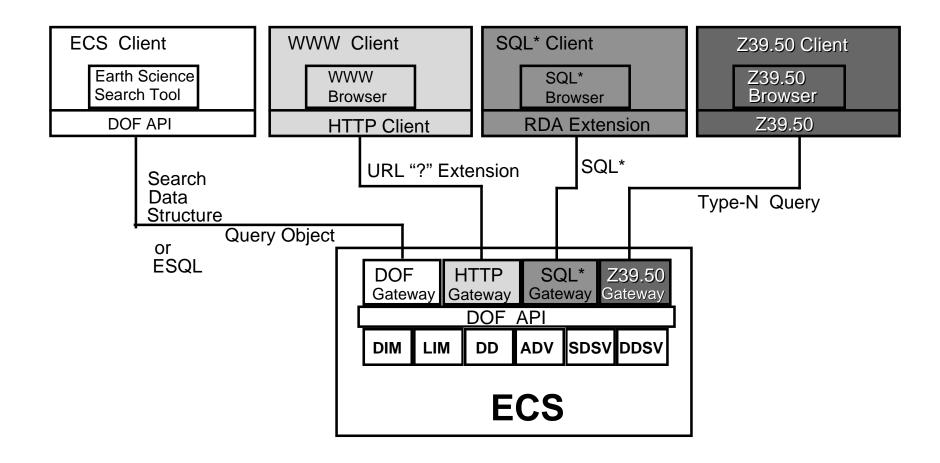


- Complex Search Data Structure
  - Graphical User Interface (driven by the Data Dictionary/Adv Service)
    Time, Space, and Parameter
  - Parameter- Value Specification at client
    Search Structure translated to COTS based search engines
    (e.g., Sybase, SQS, Illustra, WAIS)
- Earth Science Query Language
  - Graphical / Text User Interface (driven by the Data Dictionary/Adv Service)
    Time, Space, and Parameter
  - Client specified search in language using Earth Science Vocabulary Data types and Services
  - Coincidence Searching
     Specified as spatial, temporal, and parameter JOIN
  - Options include

Extensions / Subsets of Sybase or Illustra SQL Evolution to SQL3, ODMG ODL/OQL, or OMG OQS Compliance

## **ECS Release B Software Design Search and Access Options**





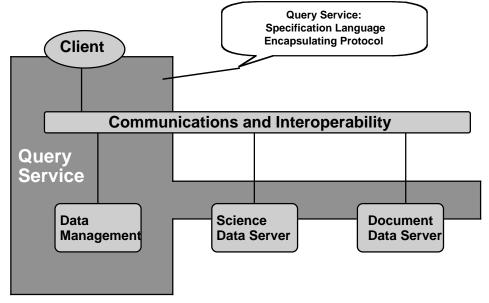
#### **Evolutionary Features Components Affected by Query Options**



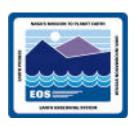
- Earth Science Query Language Accommodates Change
  - New Data Types and Services
  - Driven by the Data Dictionary Service
- Standards Focus
  - Vendor Independence for Core Features of the Language
- Changes in Language Isolated to Small Number of Design Components
  - Search Service Interface
    Client ESST and Advertising
  - Language Parsing

    Data Management DIM/LIM

    Science + Document
    Data Server



#### **Current Status & Next Steps**



- Current Status
  - Standards Reviewed and Vendor Capabilities Evaluated
  - Requirements Analyzed and Mapped to Query Language Features
  - Example Queries Developed

#### Next Steps

- Standards Evaluation

**Timeframe for Release of Specific Capabilities and Products** 

Evaluate ECS Database Management System Vendors Capabilities

Impact on system: performance, functionality, cost, and operability

- Determine Requirements implementable in Release B and C
   Data types supported e.g. text, spatial
   Data type methods supported
- Integration of Trade Study with Release B design
  Design Impact Decision in 1995 and EP7 Evaluation